

Victor Talking Machine Co.  
versus  
**Starr Piano Company**

TESTIMONY OF CHARLES SUMNER Tainter

Victor Talking Machine Co.

versus

Starr Piano Company

Testimony of Charles Summer Tainter

Q-1. Please state your name, age, residence and occupation?

A. <sup>Chas.</sup> Sumner Tainter, 66, San Diego, retired.

1 Q-2. Are you the Sumner Tainter of U. S. Bell and Tainter patent  
2 No. 341214?

3 A. I am.

4 Q-3. Are you the Sumner Tainter whose name appears at the end  
5 of the "Volta Laboratory Description" found on page 259 of  
6 "Patents & Publications Referred to in the Affidavits Filed on  
7 Motion for Preliminary Injunction" in this case?

8 A. I am.

9 Q-4. Were you a member of the Volta Laboratory Association?

10 A. I was.

11 Q-5. Who were the other members of that Association?

12 A. Chichester A. Bell and Alexander Graham Bell.

13 Q-6. Were the investigations and experiments of that Association  
14 confined to the problem of recording and reproducing sound?

15 A. No, they included other subjects.

16 Q-7. During what time did that Association continue in existence?  
17 A. From May, 1881, to <sup>about the end of</sup> ~~the fall of~~ 1885.

18 Q-8. Have you any notes or memoranda by which you have been able  
19 to refresh your memory in regard to experiments made and results  
20 achieved during that time?

21 A. I have.

22 Q-9. What are they?

23 A. They consist of notes and sketches which I made from day to  
24 day of experiments as they were tried. They also include notes  
25 of ideas and suggestions that occurred to us from day to day.

26 Q-10. Are you willing to produce your notes to be offered  
27 in evidence in this case?

28 A. I am not. Plaintiff's counsel have asked me to do this  
29 and I have declined because the notes contain detailed data  
30 on subjects not connected with this litigation and which I  
31 do not wish to disclose to others.

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Q-11. They were offered in evidence in the case of the American Graphophone Co. Vs. Edison Phonograph Works, were they not?

A. ~~I understand they were, but when I submitted them to remain in the custody of complainant's counsel, in that case counsel in that case I did not understand they were to be~~ Complainant's Counsel were my personal counsel, while in this offered in evidence or I should have declined them as I do now. ~~one both sides are more or less hostile to my interests,~~

Q-12. Have you refreshed your memory by reference to these notes, and if so, how recently?

A. Yes, I have carefully reviewed those notes during the last few days.

Q-13. After ~~this~~ <sup>thus</sup> refreshing your recollection are you able to testify from memory in regard to the experiments you made and the results secured?

A. ~~I am~~. I believe that I am.

Q-14. Were you familiar as early as 1880 with a machine for recording and reproducing sounds known as the Edison Tin Foil Phonograph?

A. I was.

Q-15. Had you, as early as 1880, ever used that machine to make a record of sounds that was capable of use to reproduce the recorded sounds?

A. I had.

Q-16. On what material was the record made?

A. Tin foil.

Q-17. Were the undulations of the Edison "Indented Tin Foil Record" hill and dale or lateral?

A. They were of the hill and dale type.

Q-18. When, if at all, prior to 1881, did you ever see a record of sounds (other than the Edison Indented hill and dale Tin Foil Record) from which the recorded sounds could be reproduced?

A. Up to that time I had never seen any record (other than the Edison) from which the sounds could be reproduced.

Q. 19. The Volta Laboratory description says:

"Our aim has been to produce a record of such an improved character as to be capable of yielding a perfect articulation with agreeable vocal quality."

1 Did the Volta Laboratory Association, or the members thereof,  
2 during the existence of that Association, ever produce a record of  
3 sounds from which they succeeded in reproducing the recorded  
4 sounds with perfect articulation and agreeable vocal quality?

5 A. No. That has not been done up to the present time so far as  
6 I am informed. But we did secure ~~a record~~ <sup>much</sup> yielding more perfect  
7 articulation and agreeable vocal quality than anything that had  
8 theretofore been attained.

9 Q. 20. Was that record of the hill and dale or zigzag type?

10 A. It was of the hill and dale type.

11 Q-21. Did the Volta Laboratory Association, or the members thereof  
12 during the existence of that Association, ever succeed in pro-  
13 ducing a zigzag record of sounds from which they were able to  
14 obtain a successful reproduction of the recorded sounds?

15 A. No, we never succeeded in ~~getting~~ <sup>understanding</sup> more than words here and  
16 there from such records.

17 Q-22. The Volta Laboratory description says:

18 "For some months previous to the present date (September  
19 1881), our invention has been practically perfected."

20 Of what type of record was that statement true, the hill and dale  
21 or the zigzag type?

22 A. Only of the hill and dale type.

23 Q-23. When, if at all, did the Volta Laboratory Association, or  
24 members thereof, during the existence of that Association, succeed  
25 in producing a record of sounds and reproducing such record with a  
26 jet of air or otherwise, so that the sounds were "heard with all  
27 their original qualities by an ear placed near the apparatus"  
28 as stated in the Volta Laboratory description?

29 A. That is ~~either~~ <sup>I think</sup> an over-enthusiastic statement of the results  
30 we secured. I doubt if ~~that has ever been done~~ <sup>this has ever been attained</sup>. <sup>however,</sup> But we did get  
31 records between May and September, 1881 that more nearly attained  
32 that result than any theretofore produced.

Q-24. When, if at all, did the Volta Laboratory Association, or  
the members thereof, succeed in producing a zigzag record of  
1 sounds and reproducing the recorded sounds, whether by a jet of  
2 air or otherwise?

3 A. We never did succeed, in reproducing more than parts of such records.

4 Q-25. The Volta Laboratory description says:

5 "The end of the cutting tool presses against the pre-  
6 pared substance and cuts out a groove of considerable width  
as the prepared substance is moved past the end of the tool."

7 What substance or substances did you employ in your experiments?

8 A. Hard rubber, zinc, type metal, boxwood, beeswax and a mixture  
9 of beeswax and parafine, and perhaps others.

10 Q-26. With what form or forms of record groove did you experiment  
11 when you thus cut out a "groove of considerable width" in the  
12 prepared substance?

13 A. <sup>Beth</sup> The hill and dale and the zigzag forms.

14 Q-27. What test or tests did you apply to determine whether or  
15 not the sounds sought to be recorded were in fact recorded in the  
16 groove?

17 A. We tried to see if the recorded sounds could be reproduced  
18 from the record.

19 Q-28. Did you apply these tests to the zigzag grooves formed by  
20 cutting out the material of the groove from the prepared sub-  
21 stance?

22 A. We did.

23 Q-29. What was the result of these tests in connection with the  
24 zigzag groove?

25 A. The best reproduction <sup>I remember of getting</sup> ~~never~~ only enabled us to under-  
26 stand a <sup>part of</sup> ~~few~~ the recorded words with ~~very~~ defective articulation.

27 Q-30. As a result of these failures to obtain successful repro-  
28 ductions from the zigzag groove, to what form of groove did you  
29 finally devote your attention?

30 A. The hill and dale type.

31 Q-31. Did you finally achieve success with the cut-out groove  
32 having hill and dale undulations?

A. We did.

Q-32. How did you know that you had succeeded with the hill and dale groove?

A. Because we obtained reproductions that could be distinctly heard and understood. In fact we obtained reproductions from such records that were readily heard and understood in a room 15 by 20 feet.

Q-33. When, if at all, did you abandon hope of succeeding in getting practical reproductions from a cut-out zigzag groove?

A. We never did abandon hope of succeeding with the zigzag groove, but we never realized that hope.

Q-34. What means did you employ in your efforts to secure reproductions from zigzag records?

A. We tried three methods. First, a rubbing style placed in the groove; second, a fine jet of air under pressure directed into the groove; and third a magnetic reproducer. This latter method was <sup>used</sup> tried with records we tried to form in ~~metal~~ iron.

Q-35. I call your attention to two illustrations (said to be from photographs) between pages 90 and 91 of "Defendants Affidavits on Motion for Preliminary Injunction" in this case and accompanying the affidavit of Robert B. Killgore Executed July 31, 1919. Please examine these photographs and state if you recognize the machine there shown?

A. I recognize it as similar to machines we made and used in our experiments, with the exception of the structure at the lower left hand corner of the photographs and which Mr.

Kilgore refers to as the "zigzag recording device". I do not remember ever seeing <sup>I believe</sup> that part and ~~think I ever saw~~ quite clear that it was not a part of the rest of the machine shown in the photographs.

We would never have placed a recording style below the axis <sup>as shown in the photograph</sup> of the record tablet since this would cause the style to vibrate diagonally across the line of travel of the tablet instead of at right angles thereto, <sup>and thus form a distorted record,</sup> ~~and we were not ignorant enough for that.~~

The recorder for that machine is shown on the lower right hand corner of the first photograph ~~and would make a hill and dale groove. It is similar to the records shown in patent 341,212 filed~~ and ~~it~~ would make a hill and dale record.

A. We did.

Q-32. How did you know that you had succeeded with the hill and dale groove?

A. Because we obtained reproductions that could be distinctly heard and understood. In fact we obtained reproductions from such records that were readily heard and understood in a room 15 by 20 feet.

Q-33. When, if at all, did you abandon hope of succeeding in getting practical reproductions from a cut-out zigzag groove?

A. We never did abandon hope of succeeding with the zig zag groove, but we never realized that hope.

Q-34. What means did you employ in your efforts to secure reproductions from zig zag records?

A. We tried three methods. First, a rubbing style placed in the groove; second, ~~a fine~~ jets of air under pressure directed into the groove; and third a magnetic reproducer. This latter method was <sup>used</sup> tried with records we tried to form in ~~metal~~, iron.

Q-35. How do you account for the fact that zigzag records today give good results while those you sought to produce during your experiments at the Volta Laboratory were failures?

A. At the time of the experiments we were unable to account for our failure<sup>s</sup>. All we knew was that we had failed. In the light of what we now know on the subject I <sup>believe now</sup> see that our failure was ~~probably~~ due to our imposing too much work on the feeble energy of the sound waves. Our apparatus was too gross, and distorted records were the result, and the size of the groove we tried to cut was too large.

Q-36. The Volta Laboratory description recites that the date is "September 1881" and it appears to have been deposited in the Smithsonian Institution October 20th, 1881. That description says -

"A phonogram of either of these kinds (zig zag or varying depth) may be copied in more durable material by any of the well known moulding or electroplating processes; and the sounds may be reproduced either from the original phonogram or from one of the copies".

Up to October 20, 1881, had the Volta Laboratory Association or

any of the members ever made an electroplate of the "varying depths" form of record?

A. No.

Q-37. Then they had never used such an electroplate of a varying depth record to press or stamp a copy?

A. No.

Q-38. And had never reproduced the sounds from such a copy?

A. No.

Q-39. Up to Oct. 20, 1881 had they ever made an electroplate of a zigzag phonogram?

A. Yes there was one made and deposited with the package in the Smithsonian.

Q-40. Had any efforts been made to reproduce the recorded sounds from that original phonogram?

A. ~~Not so far as I know. I think not, as my records do not contain any mention of such efforts.~~

Q-41. Were any copies pressed or stamped from that electroplate?

A. Not that I recall.

Q-42. Were any efforts made to reproduce the sounds from any copy pressed or stamped from such electroplate?

A. ~~Not to my knowledge. I cannot recall any.~~

Q-43. There was the statement quoted in Q-36 - a declaration of what had actually been done by the Volta Laboratory Association or of what you believed could be done?

A. What we <sup>believed</sup> ~~thought~~ could be done.

Q-44. I call your attention to two illustrations (said to be from photographs) between pages 90 and 91 of "Defendants Affidavits on Motion for Preliminary Injunction" in this case and accompanying the affidavit of Robert B. Killgore executed July 31, 1919. Please examine these photographs and state if you recognize the machine there shown?

A. I recognize it as similar to machines we made and used in our experiments with the exception of the structure at the lower left hand corner of the photographs and which Mr. Killgore refers to as the "zigzag recording device". I do not think I ever saw that part and am quite clear that it was not

a part of the rest of the machine shown in the photographs.  
1 We would never have placed a recording style below the axis  
2 of the record tablet since this would cause the style to vibrate  
3 diagonally across the line of travel of the tablet instead of at  
4 right angles thereto, and we were not ignorant enough for that.  
5 We always placed the recorder as shown at H Fig. 2 of patent  
6 341,214 .

7 Q-45. Assuming the style in the structure at the lower left  
8 hand corner of the first photograph to be a conical point  
9 would it cut a groove in the tablet?

10 A. No. It would tear out a groove leaving rough ~~wide~~ walls.

11 Q-46. What did you regard as a good record in those days?

12 A. If we could reproduce only a portion of the words which  
13 we tried to record we thought we had a good record.

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